# Simple 2D Geometric Shape Models

Robert B. Fisher
School of Informatics
University of Edinburgh

# Geometric Shape Models

Here: rigid, piecewise linear / circular boundary segments

Options:

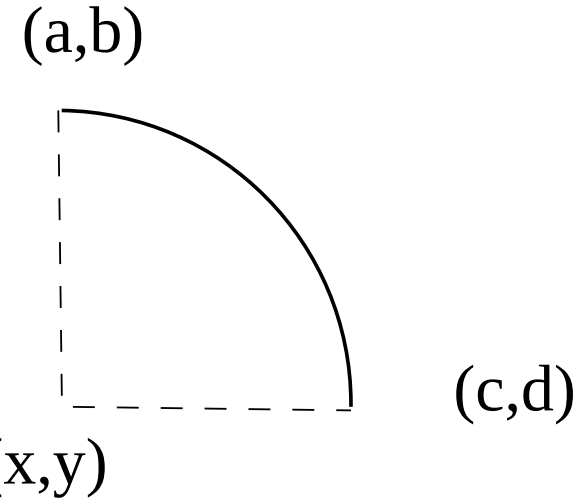
- Region representation: pixel list, quadtree
- Boundary representation
  - Curve
    - Set of boundary segments
    - Pixel list / chain code (incremental pixel list)
  - Vertices

# Polycurve / Polyline Modeling

Set of vertices connected by line / curve segments

Line segment: (a,b) -L- (c,d)

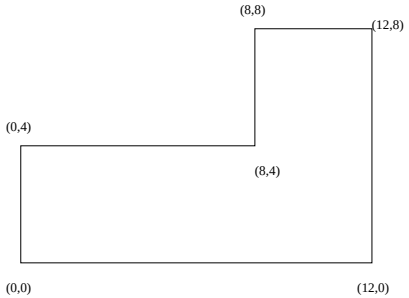
Arc segment: (a,b) -arc(x,y)- (c,d)

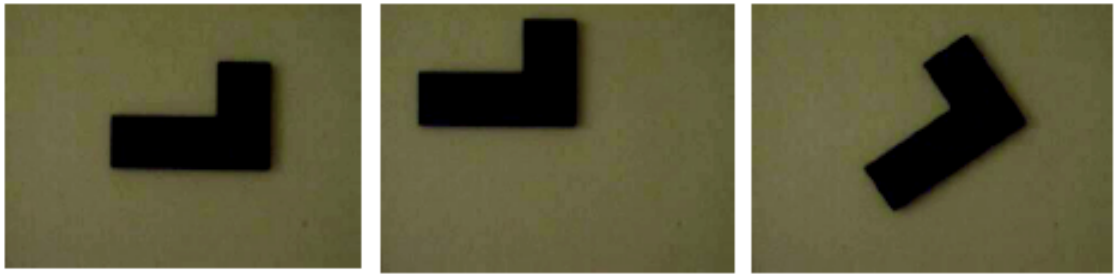



Arbitrary position in local object-centered coordinate system

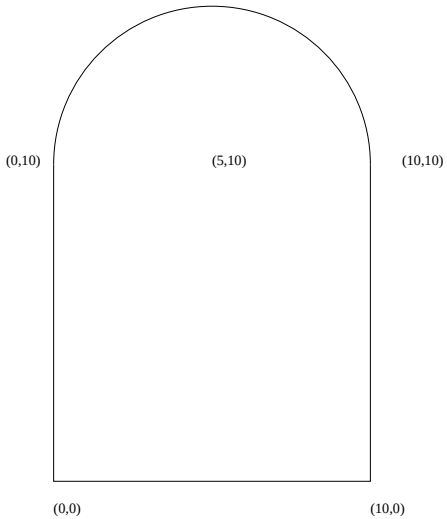
# Example Models

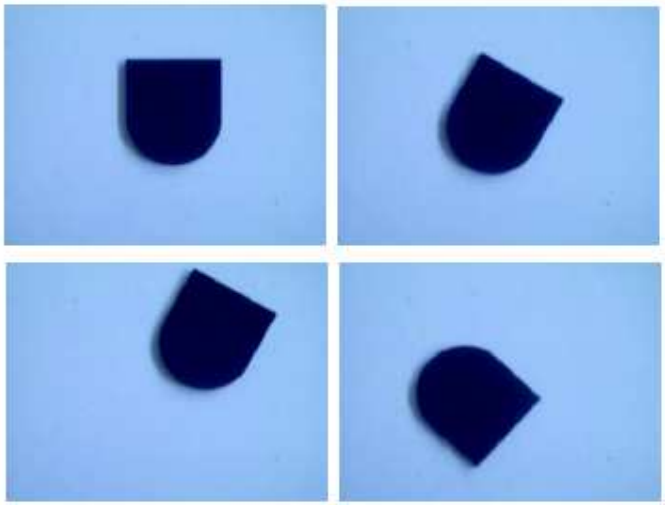
```
(0,0)-L-(12,0)-L-(12,8)-L-(8,8)-L-(8,4)-L-(0,4)-L-(0,0)
```



```
(0,0) -L- (10,0) -L- (10,10) -arc(5,10)- (0,10) -L- (0,0)
```



## What We Have Learned

1. Simple 2D Rigid Part Modeling